

Ira M. Bennett

Center for Engagement & Training in Science & Society
School for the Future of Innovation in Society
Consortium for Science, Policy & Outcomes
Arizona State University
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Education

June 2003 Ph.D. Chemistry, Arizona State University, Tempe, Arizona. Dissertation
Title: *Active Calcium Transport Across an Artificial Photosynthetic Membrane*
June 1999 BS Chemistry, The Evergreen State College, Olympia, Washington

Professional Experience

2016-present Associate Director for Research, School for the Future of Innovation in Society
2015-present Clinical Associate Professor, School for the Future of Innovation in Society and the Consortium for Science, Policy and Outcomes; Arizona State University, Tempe, AZ.
2014-present Co-Director of the Center for Engagement & Training in Science & Society; Arizona State University
2012-2016 Assistant Director of Education for the Center for Nanotechnology in Society at ASU.
2008-2015 Assistant Research Professor, Consortium for Science, Policy and Outcomes and the Center for Nanotechnology in Society; Arizona State University, Tempe, AZ.
2004-2008 Postdoctoral Research Associate, Consortium for Science, Policy and Outcomes and the Center for Nanotechnology in Society; Arizona State University, Tempe, AZ.
2004-2006 Faculty Associate, Department of Chemistry and Biochemistry; Arizona State University, Tempe, AZ.
2003-2004 Postdoctoral Research Associate, Department of Chemistry and Biochemistry; Arizona State University, Tempe, AZ.
1999-2003 Research Assistant, Department of Chemistry and Biochemistry; Arizona State University, Tempe, AZ.
1998-1999 Research Assistant, Department of Natural Sciences; The Evergreen State College, Olympia, WA.

Edited Books and Volumes

2012, Yearbook of Nanotechnology in Society Vol III: Nanotechnology, the Brain and the Future. Hayes, S.; Miller, C.; Robert, J.; Bennett, I. eds. Springer. New York, NY

Refereed Articles and Chapters

- 2017 Tomblin, D.; Pirtle, Z., Farooque, M.A.; Sittenfeld, D.; Mahoney, E.; Worthington, R.; Gano, G.; Gates, M.; Bennett, I.; Kessler, J.; Kaminski, A.; Lloyd, J.; & Guston, D.H. Integrating Public Deliberation into Engineering Systems: Participatory Technology Assessment of NASA’s Asteroid Redirect Mission, *Astropolitics*, Vol 15 no 2, pp 141-166
- 2017 Bernstein, M.J.; Reifschneider, K.; Bennett, I.; Wetmore, J.M. Science Outside the Lab: Helping Graduate Students in Science and Engineering Understand the Complexities of Science Policy. *Science and Engineering Ethics*. Vol. 23 pp 861-882
- 2014 Bernstein M. J.; Foley R. W.; Bennett I.; An operationalized post-normal science framework for assisting in the development of complex science policy solutions: The case of nanotechnology governance. *Journal of Nanoparticle Research*. 16:2492.
- 2013 Ostman, R.; Herring, M.; Jackson, A.; Bennett, I.; Wetmore, J.; Making Meaning Through Conversations about Science and Society, *Exhibitionist*, Vol. 32, no. 1, pp 42-47
- 2012 Foley, R. W.; Bennett, I.; Wetmore J. M.; Practitioners’ Views on Responsibility: Applying Nanoethics, *Nanoethics*, September 2012.
- 2008 Miller, C. & Bennett, I.; Science Fiction as Technology Assessment, *Science and Public Policy*, 35(8), 597-606
- 2008 Bennett, I.; Developing Plausible Nano-Enabled Products, *Excavating Futures of Nanotechnology Yearbook of Nanotechnology in Society*, Vol 1 edited by Fisher, E.; Selin, C.; Wetmore, J. Springer: New York, NY.
- 2006 Bennett, I. & Sarewitz, D.; Too Little, Too Late?: Research Policies on the Societal Implications of Nanotechnology in the United States, *Science as Culture* Vol. 15 no. 4, 309-325.
- 2002 Bennett, I.; Vanegas Farfano, M. V.; Bogani, F.; Primak, A.; Liddell, P. A.; Otero, L.; Sereno, L.; Silber, J. J.; Moore, A. L.; Moore, T. A.; Gust, D.; Active transport of Ca²⁺ by an artificial photosynthetic membrane, *Nature*, 420, 398-401.

Invited Commentaries

- 2009 Wetmore, J. M.; Bennett, I.; Hooke, W. H.; and Miller, T.; “Scientists: Listen Up!” letter to the editor, *Science*, Vol. 324, April 17, p. 334.

Other Publications

- 2013 “Nanotechnology and Society: A practical Guide to Engaging Museum Visitors in Conversation” A user guide written with Jameson Wetmore, Ali Jackson and Brad Herring for museum professionals. Co-published by the Nanoscale Informal Education Network and the Center for Nanotechnology in Society
- 2011 “Nanoparticles and Regulation,” Script developed for presentation on the floors of science museums with Jameson Wetmore to be distributed to museums across the country.
- 2011 Entry in the CSPO Soapbox: “The Emerging Technology Cacophony Moratorium Mad-Lib”
- 2011 Series of collaborative projects with the Nanoscale Informal Science Education Network (NISENet) including: the “Promises and Perils” a series series of four Humorous Science Education Film Scripts, by NISENet.

- 2010 Series of five posters and five informational sheets on the social implications of nanotechnology (with other collaborators) distributed by NISENet to museums across the country for Nandodays 2010 and 2011 and other programs. “Nanosilver Socks Demonstration,” white paper (with Troy Benn and Jameson Wetmore, 2009);
- 2010 Entry in the CSPO Soapbox: “Pre-natal science education”, with Jameson Wetmore
- 2010 Entry for the *Encyclopedia of Nanoscience and Society* (Thousand Oaks, CA: Sage,): The glossary, with Daniel Barben

Educational Initiatives

Director of **Science Outside the Lab** a workshop held in Washington, DC annually there are multiple sessions that provides a dozen graduate student scientists and engineers an opportunity to interact with regulators, policymakers, funding agencies, museum professionals, lobbyists and others to learn how science is incorporated into national policies and how national policies influence science. I have grown this program from one session every two years to six sessions annually.

Co-Director **Winter School on Responsible Innovation and Social Studies of Emerging Technologies**. The NNCI Winter School is a week-long learning retreat for graduate and postdoctoral students. The program is designed to give participants an introduction to and practical experience with the methods and theory employed by SFIS faculty and associates. Hands-on, collaborative instruction focuses on innovative methods for investigating the societal aspects of emerging technologies.

Director of the **Graduate Certificate in Responsible Science, Engineering and Society**. This 15-credit certificate provides students the opportunity to acquire knowledge, methods, and skills for enhancing the links between science and engineering research, technological innovation and entrepreneurship, science and technology policy, and beneficial societal outcomes. The program has the goal to improve students' abilities to contribute to creative solutions to fundamental global challenges in the 21st century.

Co-Director of **Science, Policy and Citizenship** a program developed from the Citizens' Engagement with High School Students focusing on expanding the opportunities to engage with high school age students in settings outside of formal education institutions.

Co-Organizer of **CSPO's PHD Plus Program**. This program offers graduate students in the sciences and engineering the opportunity to add a social, political, and/or ethical chapter to their PhD dissertation. I work with students to find appropriate faculty advisors and have served as an advisor.

Co-Organizer, **CNS/NNIN Informal Science Communication Program**. This program is designed to provide a space for students to work on different types of verbal communication strategies and skills. ISC also gives undergraduate and graduate students a chance to present basic science demonstrations and their own research to the general public at the Arizona Science Center.

Faculty of National Nanotechnology Infrastructure Network – Indian Institute of Technology, Mumbai **Winter School on Nanoelectronics** in Mumbai and Khandwa, **India**, Nov 27-Dec. 12, 2009. The Winter School is a two-week program for American and Indian graduate students. One week is spent in classroom session at the Indian Institute of Technology, Mumbai, the other is field work in rural India focusing on assessing emerging technologies' impact on educational settings.

- Organizer of the 2006 **International Perspectives on Nanotechnology in Society**. I developed and led a program that took 11 natural science and engineering graduate students to universities in Europe to gain perspectives on how decisions about science are made. The three-week program involved 25 invited speakers of varied backgrounds addressing different views and approaches to the governance of science.
- CNS Short Course: **Introduction to Making STEM Research Socially Relevant**. Developed (with Jameson Wetmore) a short course for the Hispanic Research Center, this course is offered every other year.

Current Grants

- Senior Investigator, “Democratic Governance of Geoengineering Research”, Alfred P Sloan, (15%-\$299,574) (2017-2019) Coordinating Phoenix events and assisting in outcome dissemination.
- Co-Investigator “NNCI Coordinating Office at Georgia Tech”, NSF-ENG, (50%-\$375,000) (4/1/2016-3/31/2021) I run the Winter School and help coordinate the Science Outside the Lab associated with this award as well as generally support the PI.
- Co-PI, “Science Center Public Forums: Community Engagement for Environmental Literacy, Improved Resilience and Decision-Making,” DOC-NOAA (15%-\$499,901) (10/1/2015 – 9/30/2018) Coordinating content development, overseeing the project GRA and assisting in outcome dissemination.
- Senior Investigator, “NASA Space and Earth Informal STEM Education Network,” NASA (5%-\$6,354,273) (10/1/2015 – 9/30/2020)

Completed Grants

- Principal Investigator, “Scientist Support System: Science Engagement Facilitators Landscape Overview”, Rita Allen Foundation, (100%-\$19,766), (3/19/2018-8/18/2018)
- Senior Investigator, “Networks for Characterizing Chemical Life Cycle: LCnano,” NSF/EPA (5%-\$5,000,000) (09/01/13 – 08/31/17) Developing a museum demonstration engagement program
- Co-PI “SciStarter 2.0: A Dashboard to Drive Research Participation and Community building in Citizen Science,” NSF-EHR (25%-\$299,970) (10/15/2015 – 9/30/2017) Developing broader social science research program and assisting the PI in project management.
- Senior Investigator “NSEC / Center for Nanotechnology in Society” NSF (9%-\$6,500,000) (#0937591) (9/15/10-8/31/15). Arizona State University. I am engaged in developing Center related curricular material, teaching and providing technical commentary.
- Co-PI “Participatory Engagement for Energy Policy Planning and Decision-Making,” Allegany Science and Technology (15%-963,287) (12/8/2015 – 1/31/2017), Assisting PI in project management, organizing several workshop for content development, will contribute to dissemination events. Project ended early due to contract cancellation.
- Co-PI “Participatory Technology Assessment of NASA’s Asteroid Initiative” NASA (40%-\$196,908) 4/1/14 – 3/31/15 I am coordinating the development and delivery of citizen’s forums in Boston and Phoenix.
- Senior Investigator, Coordinator, SEI program of the National Nanotechnology Infrastructure Network, NSF (50%-\$115,000) (07/01/13 – 06/30/15).

Senior Investigator “Introductions to the Conduct of Socially Responsible Research: Developing and Assessing Macroethics Modules for the Collaborative Institutional Training Initiative (CITI) Responsible Conduct of Research (RCR) Courses” NSF #1033111 (0%-\$295,909) (10/01/10 – 9/30/12).

Senior Investigator “Center for Nanotechnology in Society” (0%-\$6,200,000) NSF #0531194) (10/01/05-9/30/10)

Senior Investigator of “Integrating Microethics and Macroethics in Graduate Science and Engineering Education: Development and Assessment of Instructional Models” NSF (0%-\$299,915) NSF #0832944 (9/08-9/11). As part of this 3-year, \$300,000 NSF grant I am developing new course material and teaching as an embedded ethicist in the Biological Design Core course to develop new methods to teach ethics to graduate students.

Senior Investigator, “Collaborative Research: Rationale Design of Enhanced Catalytic Nanomotors” NSF (3%-\$600,000) (3/1/09 -2/29/12). I am working in partnership with the PI to develop curricular and outreach materials.

Senior Investigator “Interaction of Engineered Nanomaterials with Artificial Cell Membranes” NSF (3%-\$313,015) (9/1/09 - 8/31/12) I am working in partnership with the PI to develop curricular and outreach materials.

Invited Presentations

2017 “Introduction to Publicly Funded Science” University of Minnesota, Minneapolis, MN, March 24th.

2017 “Nanotechnology and Society Programming Cooked Three-Ways: For Natural Scientists and Engineers, Social Scientists, and Publics.” *1st International Symposium on Molecular Robot Ethics*, University of Tokyo, Tokyo, Japan, March 13th,

2016 “Workshop: Radical Relationships in Art & Science” *Open Engagement*, Oakland CA, April 29

2015 “The Center for Nanotechnology in Society: A decade of experimentation with graduate education, *Sustainable Nanotechnology Organization*, Portland OR, November 8.

2015 “Strategic Issues: New Graduate Training for Scientists and Engineers” *The Dean’s Forum*, Ecole des Mines, Paris, France, August 26.

2014 “Introduction to Publicly Funded Science” Appalachian State University, Boone NC, Oct 15

2014 “Careers in Science Policy” University of Florida, Gainesville FL, Sept 27

2014 “Nanotechnology Around the World” *Nanohub Users Meeting*, Phoenix AZ, April 10. With Kiera Reifshneider

2014 “Science outside the lab: Teaching scientists how the government works and them to believe it might not be so bad, *ACS MidWest Regional Meeting*, Columbia, MO November 15

2014 “Nano and Society Brownbag” *Nanoscale Informal Science Education Network Online Brownbag Series*, March 4. With Jamey Wetmore, Brad Herring, Kevin Dilly and Douglas Coler

2014 “An Unbelievable Roadmap” *Unbelievable Biomed* Arizona Science Center, May 10

2013 “Education, Outreach and Engagement at the Center for Nanotechnology in Society at Arizona State University” at the *Nanoscale Science and Engineering Grantee’s Conference*, Arlington VA Dec 2013

- 2013 “Nanotechnology: Will it Change Your Life” *Rio Verde Community Lecture Series*, Rio Verde AZ, Feb 26
- 2012 “Nanotechnology in Society Workshops” at the *Nanoscale Informal Science Education Network Wide Meeting*, Boston, MA, Dec 12, with Jameson Wetmore, Brad Herring, Rae Ostman, Stephanie Long, and Heather Barnes
- 2012 “Teaching Ethics, Policy and Societal Implications of Research to Science and Engineers: Delivering the Content” at the *Material Research Society’s 2012 Fall Meeting*, Boston, MA, Nov 27.
- 2012 “SEI Professional Development Plans,” at the *Societal and Ethical Implications Meeting, Nanoscale Informal Science Education Network*, Oregon Museum of Science and Industry, Portland, OR, January 12. With Jameson Wetmore
- 2011 “SEI in the 2012 Nanodays Kits” at the *Nanodays 2012 Planning Meeting, Nanoscale Informal Science Education Network*, Science Museum Minnesota, St. Paul, MN, February 3.
- 2010 “Nanotechnology 101: The Technical and Political History of Nanotechnology,” panel member, *Nanoscale Informal Science Education Network Annual Meeting*, San Francisco, CA.
- 2010 “Science Fiction as Technology Assessment”, *Emerging Terraformations: Climate Change, Geoengineering and Science Fiction*, UC Santa Cruz, Santa Cruz, CA.
- 2010 “Visions for future innovation and implications”, *Atlanta Transatlantic Workshop on Nanotechnology Innovation and Policy*, Georgia Institute of Technology, Atlanta, GA.
- 2009 “Publicly funded science: a comparison between India and the United States” National Nanotechnology Infrastructure Network, Indian Institute of Technology, Mumbai *Winter School on Nanoelectronics*, Mumbai, India.
- 2009 Panelist, Societal Benefits of Research, *Fourth Symposium on Policy and Socio-Economic Research*, 89th American Meteorological Society’s Annual Meeting, Phoenix Arizona.
- 2007 “What if I don’t want my advisor’s job: Careers outside (gasp) the academic laboratory”, Association of Women in Science Central Arizona Chapter, Tempe, AZ.
- 2007 Science Fiction as Technology Assessment, *Futures of Life*, Cornell University, Ithaca NY.
- 2003 “Mimicking the Functional Components of Biological Membranes”, Biology Division, Los Alamos National Laboratory, Los Alamos, NM.
- 2003 “Active Calcium Transport Across an Artificial Photosynthetic Membrane”, Department of Chemistry, Carnegie Mellon University, Pittsburg, PA.
- 2002 “Active Calcium Transport Across Lipid Bilayers”, Instituto Tecnológico y de Estudios Superiores de Monterrey, Dept. of Chemistry, Monterrey, Nuevo León, México.
- 2001 “Approaches to Artificial Photosynthesis”, The Evergreen State College, Olympia, WA.

Academic Presentations

- 2017 Building practice: Offer process lessons-learned and a vision of pTA communities of practice, *Atlanta Conference on Science and Innovation Policy*, Atlanta GA, October 10th
- 2017 Public Engagement with STS Concepts, *Making and Doing, 4S*, Boston MA, August 31st. With Rae Ostman and Jamey Wetmore

- 2015 Engaging the public in STS: Exploring values, relationships, and systems with museum visitors, *Making and Doing, 4S*, Denver CO, November 12. With Rae Ostman and Jamey Wetmore
- 2015 Responsible Innovation, *Atlanta Conference on Science and Innovation Policy*, Atlanta GA, September 18. Session Chair
- 2014 “Engaging Visitors in Nanotechnology and Society, Pre-conference workshop” Association of Science and Technology Centers, Durham NC, Oct 17. With Jamey Wetmore, Stephanie Long, Rae Ostman, Brad Herring, Kevin Dilly and Heather Barnes
- 2012 STS Concepts and Educational Approaches for Engaging the Public in Nanotechnology and Society at *The Fourth Annual Conference of the Society for the Study of Nanoscience and Emerging Technologies*, October 22-25
- 2012 Engaging with Environmental Policy at Zoos: the Science, Policy and Citizenship Program on Biodiversity at *The Annual Meeting of the Society for the Social Studies of Science*, Copenhagen, Denmark, October 17-20
- 2011 “Engaging the Public in Nanotechnology: Strategies, Approaches, and Resources” panelist at *The Third Annual Conference of the Society for the Study of Nanoscience and Emerging Technologies*, Tempe AZ November 7-10
- 2010 “Lessons of Engagement: Learning from Policymakers and the Public,” *Annual Meeting of the American Association for the Advancement of Science*, San Diego, February 22
- 2009 S.NET Pre-Conference Workshop: Real-time Technology Assessment and Anticipatory Governance, University of Washington, Seattle WA.
- 2009 “Anticipatory Governance of Emerging Nanotechnologies”, *American Chemical Society*, Salt Lake City, UT
- 2009 “Non-Traditional Careers for Scientists and Engineers”, Department of Chemistry, American University in Cairo, Cairo, Egypt
- 2007 “Bureaucrats, Regulators, and Lobbyists, Oh My!: Introducing Graduate Students to Science Outside the Lab”, *CSPO enLIGHTeNING Lunch Speaker Series*, ASU, Tempe, AZ.
- 2007 “Graduate Education in the Social and Ethical Aspects of Engineering,” panelist at the *American Society for Engineering Education Annual Conference and Exposition*, Honolulu, HI.
- 2006 “A New Vision for Research and Education on the Societal Implications of Nanotechnology: The Center for Nanotechnology in Society at Arizona State University”, *The Materials Research Society Spring Meeting*, San Francisco, CA.

Poster Presentations

- 2016 “SciStarter 2.0” *NSF ASIL PI Meeting* Arlington VA December 2-3
- 2012 “Tinkering with the temperature of the planet earth and designing synthetic organism: Engaging high school age students in participatory decision making about science and society” Bennett, I. *Ecological Society of America Annual Meeting*, Portland, OR
- 2007 “The Center for Nanotechnology in Society at Arizona State University”, Bennett, I.; *3rd International Nanotechnology Conference on Communication and Cooperation*, Brussels, Belgium, April 16-19.
- 2004 “Stakeholders in nanotechnology policy”, Bennett, I. M.; *International Congress of Nanotechnology*, San Francisco, CA, November 7-10.

- 2004 “Where is nanoPolicy?”, Bennett, I. M.; *Gordon Research Conference on Science Policy*, Big Sky, MT, August 15-20.
- 2002 “Light-Driven Calcium Transport Across Biological Membranes”, Bennett, I. M.; Vanegas Farfano, M. V.; Primak, A.; Liddell, P. A.; Otero, L.; Sereno, L.; Silber, J. J.; Moore, A. L.; Moore, T. A.; Gust, D., *Gordon Research Conference on Electron Donor Acceptor Interactions*, Newport, RI, August 11-16.
- 2002 “Light-Driven Calcium Transport Across Biological Membranes”, Bennett, I. M.; Vanegas Farfano, M. V.; Primak, A.; Liddell, P. A.; Otero, L.; Sereno, L.; Silber, J. J.; Moore, A. L.; Moore, T. A.; Gust, D., *Inter-American Photochemical Society, 13th Winter Conference*, Tempe, AZ, January 2-5.
- 2001 “Light-Driven Calcium Transport Across Biological Membranes”, Bennett, I. M.; Vanegas Farfano, M. V.; Primak, A.; Moore, A. L.; Gust, D.; Moore T. A., *Inter-American Photochemical Society, 12th Conference*, Ascochinga, Córdoba, Argentina, May 20-25.
- 2001 “Photochemical Transmembrane Calcium Transport”, Bennett, I. M.; Vanegas Farfano, H. M.; Moore, A. L.; Gust, D.; Moore T. A., *Tenth Western Photosynthesis Conference*, Pacific Grove, CA, January 4-7.
- 2000 “Developing High Output Photovoltaic Devices Based on Biomimetic Systems”, Bennett, I.; Jardine, K.; Sniegowski, J.; Axelrod, B.; Barney, B.; Scruggs, A.; Smith, A.; de la Garza, L.; Allen, J.; Liddell, P.; Lin, S.; Pizziconi, V.; Taguchi, A.; Williams, J., *Ninth Western Regional Photosynthesis Conference*, Pacific Grove, CA, January 6-9.
- 1999 “A Comparison of the Neutral and Protonated Forms of a Synthetic Histidine-Tyrosine Analog: Solution and Structural Properties”, Pessiki, P. J.; Paulsen, B.; Bennett, I.; Ho, D. M.; Dismukes, G. C., *American Chemical Society, 54th Northwest Regional Meeting*, Portland, OR, June 20-23.

Conferences/Workshops Organized

- 2014 *NASA’s Citizen Forum on the Asteroid Initiative*: I organized the 98-person forum in Phoenix as part of the Participatory Technology Assessment of NASA’s Asteroid Initiative.
- 2013-15 *Winter School on Anticipatory Governance of Emerging Technologies*: Co-Organized the first of what is to be an annual workshop highlighting the Anticipatory Governance Framework. Participants were graduate students and early career faculty and government employees from around the world.
- 2012 *Facilitating conversations on the science museum floor: Engaging visitors in the social aspects of science and technology*. A workshop for Scottish museum professionals held at the Genomics Policy and Research Forum, University of Edinburgh, Edinburgh, Scotland. November, 8
- 2012 *Nano and Society Workshop Series*: A series of four workshops giving around the country to introduce museum professionals to concepts of science in society, conversational approach and self-assessment techniques. This workshop was offered by the NISE Net as a part of its professional development programming for the science center/museum community.
- 2012 *Science Beyond the Field: a Policy (dis)Orientation*. This workshop brought speakers and topics from the Science Outside the Lab program to the ESA Annual Meeting in Portland OR. This was co-organized with Lori Hiding, Jameson Wetmore and Mahmud Farooque.

- 2011 *Designer Organisms: The promise and perils of synthetic biology*. A citizens engagement program with students from Thomas Jefferson High School for Science and Technology, Alexandria, VA, co-organized with Mahmud Farooque.
- 2010 *Tinkering with the Temperature of Planet Earth, a Participatory Technology Assessment Exercise* with students from Thomas Jefferson High School for Science and Technology, Alexandria, VA, co-organized with Mahmud Farooque.
- 2010 *The Rightful Place of Science?* Member of the Organizing Committee.
- 2009 CNS / NISENet joint Museum Demonstrations on Nanotechnology and Society, Pacific Science Center, Seattle, September 7; *Annual Meeting of the Society for the Study of Nanoscience and Emerging Technologies*, University of Washington, September 8.
- 2006 *Policy Science Summer Workshop: Developing Capacity in Early Career Policy Scientists*. co-organized with Jason Vogel University of Colorado-Boulder Boulder CO, June 9-11

Professional Service

- 2016—present AAAS Science Policy Fellowship Selection Committee
- 2010-2016 Regional Editor, *Journal of Nano Education*.
- 2009-present Content Steering Group Advisor, Nanoscale Informal Science Education Network.

University Service

- 2019, Guest reviewer, HIDA/CHS collaborative seed grant program.
- 2018, Guest reviewer, HIDA/FSE collaborative seed grant program.
- 2010-2015, Co-Organizer of the Informal Science Communication program
- 2009-Present, Faculty, Professional Science Masters Program in Science and Technology Policy
- 2005, 07, 08, Graduates in the Earth, Life, and Social Sciences Symposium Judge
- 2007-Present, Judge at More Graduate Education at Mountain States Alliance Annual Student Research Conference.
- 2007 The Arizona-American Indian Science and Engineering Fair Judge
- 2006-2015, Faculty Advisor: Jewish Arizonans on Campus
- 2005 Grand Awards Judge for Biochemistry at the Intel International Science and Engineering Fair

School/Unit Service

- 2013-Present, Admissions Committee, Professional Science Masters in Solar Energy Engineering and Commercialization
- 2010-2016, Admissions Committee, Professional Science Masters in Science and Technology Policy
- 2009-Present, Curriculum Committee, Professional Science Masters in Science and Technology Policy
- 2009-Present, Curriculum Committee, Professional Science Masters in Nanoscience

Reviewer

- Science, Technology and Human Values*

Nanotechnology: Law and Business
The Royal Society of Chemistry: Chemistry Communications
Journal of Nano-education
Rangelands (2010)
Triple Helix: The International Journal of Science, Society, and Law at Arizona State University
Pakistan Journal of Scientific and Industrial Research
Science Technology and Public Policy

Community Service

“Science and Regulatory Challenges of Commercial Nanoparticles,” science café, Berkeley, CA, September 12, 2011. With Jameson Wetmore
Member of the Project Pathways Design Team part of “Framing New Pathways to Medical Discovery for Families, Students and Teachers” Funded by NIH/SEPA March 2011- Present.
Organizing Committee of the Arizona Science Center’s “Making Stuff” Science Festival, February 18-20, 2011.
Presentations at the Arizona Science Center including: “Nanotechnology and You” (2014) “Equity in the Nano City” (with Tim Boyd, 2012) “Imagining the Future: Can Science Fiction Help Us Govern Technology?” (with Clark Miller, 2009); “The Science and Politics of Nanosilver Socks” (with Troy Benn and Jameson Wetmore at Triple Play Days, 2008); “What do you Think About a Technology You Can’t Even See?” (with Jameson Wetmore April 18, 2008); “Why Things (Still) Don’t Fit: Human Variation and Ergonomics in the 21st Century” (with Claire Gordon, 2007)
Organized ASU’s Nanodays student presentations, a week-long annual event sponsored by the Nanoscale Informal Science Education Network, annually since 2008 at both the Tempe Festival of the Arts and the Arizona Science Center (with Jameson Wetmore).
Presentations to local community organizations including: “Publicly Funded Science”, 2nd Friday Science Café, East West Exchange, Chandler, AZ (2009); “Frozen in Time: A tour of Alcor Life Extension Foundation”, Spirit of the Senses, Scottsdale, AZ. (with Jason Robert, 2007); “Emerging Technologies”, Spirit of the Senses, Phoenix, AZ (with Daniel Sarewitz and Jason Robert, 2006) “Emerging Technologies” Science Café at Changing Hands Bookstore (with Cynthia Selin 2006)

Other Service

City of Tempe Historical Preservation Commission, 2011-2016 (Vice-Chair 2013-2015)
The commission makes recommendations to the Development Review Commission as well and City Council and the Mayor regarding designation of landmarks, historic properties and historic districts.
Director 2006-2011, Arizona Region of the Sports Car Club of America Board of Directors, I was responsible for the fiscal and personnel management of the 800+ member amateur auto-racing club. I also was the Specialty Chief of Technical Inspection in charge of managing a 10-member crew that performs safety and class compliance inspections on competing racecars.

Honors/Awards

2003 Certificate in Recognition for Excellence as a Teaching Assistant, Department of Chemistry and Biochemistry, Arizona State University
1999 NSF Pre-Doctoral Interdisciplinary Research Training Fellowship in Biomolecular Devices

University Courses Developed and Taught

- FIS 494 Sea Turtles, Sharks, and Fisheries of Baja California: Emerging Topics in Marine Conservation.** A 3-credit course that I developed with Jesse Senko, it involves a week-long study abroad component in La Paz, MX.
- HSD 540 Responsible Innovation and Research.** This 3-credit graduate seminar was developed as the required course for the Responsible Innovation Graduate Certificate. In its first offering Fall 2013 it attracted students from Engineering, Education and Science Policy.
- HSD 594 Solar Energy Policy Workshop.** I developed this course with Jameson Wetmore and Gregg Zachary to provide students in the Professional Science Masters in Solar Energy Engineering and Commercialization with an onsite policy experience in Washington DC. This two-credit program is run in the early summer, annually.
- NAN 505 Nanoscience and Society.** I developed this two-credit introduction into science policy, science studies and ethics of technology for students in the Professional Science Masters in Nanoscience degree program. The course is taught every spring starting in 2010.
- HSD 505 Science and Technology Policy Workshop.** This course is the Science Outside the Laboratory workshop in Washington DC that I have modified for students in the Professional Science Masters in Science and Technology Policy. Students complete a week of intensive writing exercises before the trip to DC and present those writing while in DC.
- BDE 701/702 Fundamentals of Biological Design.** I was responsible for an ethics/social implications of science/policy component of this first year core course for the Biological Design PhD program. The nine-credit course covered many basic principals of molecular and cellular biology. The course was taught on the fly, conversations started as topics or issues were raised in class.
- CHM 501/MAE 591 Science Policy for Scientists and Engineers.** I created this new course with Jonathan Posner (Engineering) and Jameson Wetmore to introduce graduate student scientists and engineers to the social aspects of science and technology. Class consistently fills to 18 student capacity. Offered every Fall 2008 – Spring 2013, sometimes with two sections.
- POS 394 Introduction to Science & Technology Policy.** I helped create a new “Science and Society” course for undergraduates (with Clark Miller and Jameson Wetmore). Was offered to 125 students (capacity) in Spring 2011.
- CHM 394/ASB 394/POS 426 Learning Community: The Social, Political, and Scientific Challenges of New Technologies: Nanotechnology** I served as leader and professor of a nine credit Learning Community that provided undergraduates with an integrated multi-faced exploration of nanotechnology (with David Guston and Jameson Wetmore) in Spring 2008.

POS 598/BIO 598/JUS 598 **Science, Technology, and Societal Outcomes.** I created (with Jameson Wetmore) a graduate course that served as an introduction to CSPO approaches and ideas. Offered in 2006 and 2007.

CHM 598/PYS 598 **Nanoscience in Society.** I developed this course to investigate the technical, societal and political issues surrounding emerging technologies with in-service high school math and science teachers. This course focused on curriculum development, especially ways to integrate both natural science and social science into already overloaded science curriculums.

University Courses Taught

CHM 107 **Chemistry in Society.** I taught this course as an alternative to CHM 101 and covered general chemistry concepts while relating those concepts back to the everyday interactions that we have with chemistry. This course is taught as a large lecture course with recitation and laboratories.

CHM 113 **Introduction to General Chemistry I.** First semester of general chemistry for natural science majors. This course is taught as a large lecture course with recitation and laboratories.

CHM 116 **Introduction to General Chemistry II.** Second semester of general chemistry for natural science majors. This course is taught as a large lecture course with recitation and laboratories.

Guest lectures in over fifteen ASU courses in multiple disciplines for both grads and undergrads including Biological Design, Nanotechnology, Behavioral Neuroscience, Chemistry, Design, Law and Anthropology.

Prior to becoming faculty I served as a teaching assistant, laboratory coordinator and guest lecturer for Chemistry and Society, Introduction to Biochemistry and Introduction to Multidisciplinary Laboratory Resources.

Graduate Students

2013 Tomasz Kalinowski, PhD in Biological Design (committee member)

2014 Melissa Cannon, MSTP (committee chair)

2017 Aubrey Wigner, PhD in HSD (committee member)

2019 Eliot Kemper, MSTP (committee member)

Undergraduate Honors Theses

2007 Timothy Shaw, Mechanical Engineering, undergraduate honors thesis (committee member)